

The North Pacific anticyclone was especially well developed in midocean throughout February. Between California and the Hawaiian Islands cyclonic disturbances related to the northern low system prevailed during the first 14 days, but thereafter the anticyclone remained unbroken to the coast by intruding depressions. In Asiatic waters conditions were less stable, several HIGH and LOWS succeeding each other, coming from the continent.

The following table gives barometric data for several island and coast stations in west longitudes, including Point Barrow on the Arctic Ocean.

TABLE 1.—Averages, departures and extremes of atmospheric pressure at sea level at indicated hours, North Pacific Ocean and adjacent waters, February, 1931

Stations	Average pressure	Departure from normal	Highest	Date	Date	Date
	Inches	Inch	Inches		Inches	
Point Barrow ¹	30.08	-0.04	30.56	7th	29.74	1st.
Dutch Harbor ¹	29.36	-0.24	30.20	22d	28.48	14th.
St. Paul ¹	29.48	-0.17	29.98	22d	28.76	9th.
Kodiak ¹	29.23	-0.39	29.78	23d	28.44	11th.
Midway Island ¹	30.10	+0.11	30.28	24th	29.76	1st.
Honolulu ¹	30.13	+0.03	30.23	14th	29.99	2d.
Juneau ¹	29.69	-0.23	30.29	2d.	29.10	18th.
Tatoosh Island ¹	30.00	+0.02	30.48	23d	29.37	16th.
San Francisco ¹	30.01	-0.06	30.27	18th	29.56	12th.
San Diego ¹	29.96	-0.08	30.22	18th	29.56	12th.

¹ P. m. observations only.

² For 27 days.

³ A. m. and p. m. observations.

⁴ Corrected to 24-hour mean.

Cyclones and gales.—Conditions of wind and weather on the Pacific were far less intense than in January, and general storm activity was less widespread. Of the traveling cyclones from Asiatic waters, none was of great importance. A moderately deep storm caused a north-westerly gale of force 11 southeast of the Kurils on the 3d, and fresh to strong gales were noted on a few days east of Japan in connection with some rather shallow and brief-lived disturbances.

In upper waters south and southeast of the Aleutians gales of force 8 to 10 occurred on about 20 days, irregularly distributed, and many of them purely local in character. They were most frequent along that part of the northern routes lying southwest of the Gulf of Alaska, in the region most frequented this month by the Aleutian disturbance. However, the heaviest winds, westerly gales of force 11, in northern waters occurred south of the central Aleutians, one on the 8th, at which time the cyclone was of considerable depth, and the other on the 23d, with the barometer only moderately depressed.

During the early half of February two cyclones, separated from the lower extensions of the Aleutian cyclone, developed, though to no great depth, to the westward of California. The former gathered on the 1st and entered the coast on the 5th. The latter was disconnected from the upper disturbance on the 7th and was reunited with it on the 13th or 14th. Its highest reported winds were of force 8. The earlier was the severer, as may be indicated particularly by the report of the Swedish motor ship *Laurel*, which encountered northerly gales on the 1st, near 25° N., 140° W., and continued in them until near San Francisco on the 6th. On the 3d the maximum

wind had increased to a whole gale, and on the 4th, near 32° N., 132° W., to force 11, thus showing the cyclone to have been rather intense, at least in some localities.

Two severe northers were experienced in the Gulf of Tehuantepec. One on the 4th developed full storm force. During the afternoon of the 25th, and continuing through the night, the motor ship *William Penn*, entering the gulf, encountered fresh to whole northerly gales, with squalls of hurricane force and such "short, vicious seas," that at times she "was literally under water."

The prevailing wind direction at Honolulu was from the east, with a maximum velocity of 29 miles an hour from the same direction on the 24th.

Fog.—Fog was more scattered and infrequent than it had been before for many months. At the most, it was reported at some distance off the California coast on four days, and off the coast of Washington and in the vicinity of Midway Island on three days.

BUCKET OBSERVATIONS OF SEA-SURFACE TEMPERATURES

By GILES SLOCUM

STRAITS OF FLORIDA AND CARIBBEAN SEA

The temperatures herein published are the means of the average temperatures for the four quarters of the month, except that, in the case of the 5° subdivisions of the Caribbean Sea, the figures shown are the simple means of the observed temperatures with the entire month taken as a unit. Table 1 shows the lengths of the quarters for each length of month.

Table 2 shows the mean temperature for the Caribbean Sea and the Straits of Florida for February of each year from 1919 to 1930, inclusive, and Table 3 summarizes the temperature for the month in the same areas, including the departures of the February, 1930, means from the 11-year means for February (1920-1930), and the changes from the temperatures for the preceding month of January, 1930.

The means for 1919 are not used in the computations for comparisons, the poor distribution and the dearth of data for that year making them somewhat unreliable.

The chart shows the number of observations taken during the month of February, 1930, within each 1° square; the mean temperature of the Straits of Florida, and of each 5°¹ subdivision of the Caribbean Sea; the 11-year means (1920-1930) for these areas; and the local mean time corresponding to Greenwich mean noon, at which time the mariners are instructed to make the temperature readings.

TABLE 1.—Lengths of "Quarter-months" used in computing mean sea-surface temperatures

Length of month	Days of month included in quarter			
	I	II	III	IV
28 days	1-7	8-14	15-21	22-28
29 days	1-7	8-14	15-21	22-29
30 days	1-7	8-15	16-22	23-30
31 days	1-7	8-15	16-23	24-31

¹ In three cases, indicated on the chart, the observations from small, little traveled, and unimportant areas at the outer limits of the Caribbean Sea have been treated as parts of contiguous 5° subdivisions.

(Plotted by Giles Slocum)

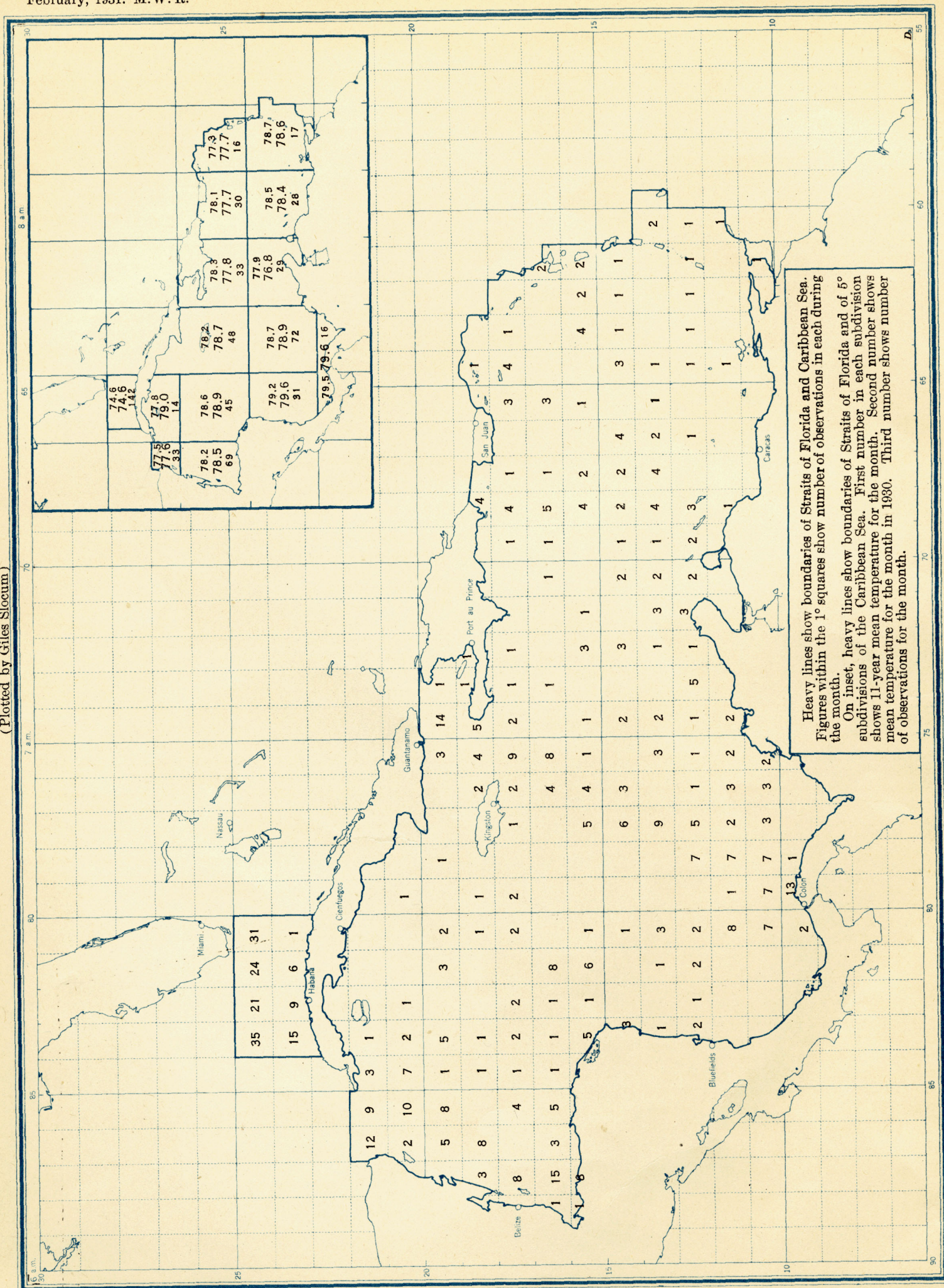


TABLE 2.—Mean sea-surface temperatures in the Caribbean Sea and the Straits of Florida for February, 1919-1930

Year	Caribbean Sea		Straits of Florida	
	Number of observations	Mean temperature	Number of observations	Mean temperature
1919 ¹	31	79.4	14	74.8
1920	114	78.6	22	74.2
1921	167	78.0	42	74.6
1922	187	78.4	82	74.6
1923	281	77.3	68	75.4
1924	369	78.5	102	73.6
1925	213	78.1	72	75.0
1926	350	79.2	115	73.2
1927	285	79.0	106	76.1
1928	407	79.0	125	74.0
1929	387	78.8	130	75.1
1930	481	78.4	145	74.6
Mean (1920-1930)		78.5		74.6

¹ Not used in computations because of insufficient data.

TABLE 3.—Mean sea-surface temperatures (° F.), and number of observations, February, 1930

Quarter	Period	Caribbean Sea				Straits of Florida			
		Number of observations	Mean	Departure from 11-year mean (1920-1930)	Change from preceding month	Number of observations	Mean	Departure from 11-year mean (1920-1930)	Change from preceding month
I	1 to 7	112	° F. 78.8	° F.	° F.	37	° F. 74.8	° F.	° F.
II	8 to 14	93	78.1			32	74.0		
III	15 to 21	126	78.4			37	75.3		
IV	22 to 28	150	78.5			39	74.5		
Month		481	78.4	-0.1	-0.3	145	74.6	0.0	-1.0

CLIMATOLOGICAL TABLES

CONDENSED CLIMATOLOGICAL SUMMARY

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Condensed climatological summary of temperature and precipitation by sections, February, 1931

(For description of tables and charts, see REVIEW, January, p. 50)

Section	Temperature								Precipitation							
	Section average	Departure from the normal	Monthly extremes						Section average	Departure from the normal	Greatest monthly		Least monthly			
			Station	Highest	Date	Station	Lowest	Date			Station	Amount	Station	Amount		
	° F.	° F.		° F.			° F.		In.	In.		In.		In.		
Alabama	49.8	+1.2	2 stations	77	17	2 stations	18	10	3.41	-1.90	River Falls	5.42	Birmingham	1.68		
Arizona	48.6	-0.8	Gila Bend	86	11	Alpine	-1	17	3.75	+2.58	Natural Bridge	8.19	Springerville	0.52		
Arkansas	48.2	-4.9	Hope	75	13	Dutton	14	10	4.77	+1.47	Dutton	8.04	Junction	2.50		
California	48.9	+1.7	Blythe	84	3	Twin Lakes	-10	16	2.56	-1.88	Mount Wilson	8.82	Bishop Creek	0.21		
Colorado	32.5	-4.8	2 stations	70	13	2 stations	-16	17	1.26	+0.26	La Veta Pass	6.15	Gunnison	0.00		
Florida	58.9	-1.4	Belle Glade	84	18	do	24	11	2.11	-1.00	Apalachicola	5.75	Palatka	0.40		
Georgia	49.8	+1.3	Waycross	79	18	Clayton	13	11	2.83	-2.15	Cornelia	4.47	Meldrim	1.43		
Idaho	28.3	-0.2	Glenns Ferry	74	15	Felt	-18	18	1.09	-0.69	Roland	4.30	Grand View	T.		
Illinois	37.9	+8.5	Carbondale	72	7	Marengo	1	10	1.29	-0.64	Cairo	3.35	Geneseo	0.12		
Indiana	37.6	+7.4	Rome	68	7	Plymouth	10	10	1.65	-0.87	Rome	3.31	Whiting	0.24		
Iowa	35.4	+12.8	3 stations	65	12	2 stations	-4	10	0.25	-0.96	Keokuk (No. 2)	1.13	14 stations	T.		
Kansas	41.7	+7.9	Atwood	76	19	Centralia	6	10	0.98	-0.03	Overbrook (near)	2.88	Coldwater	0.13		
Kentucky	41.6	-5.0	2 stations	72	7	Beattyville	12	15	3.20	-0.25	Franklin	5.49	Whitesburg	1.51		
Louisiana	55.8	-2.3	Morgan City	80	7	2 stations	20	11	3.73	-0.84	Logansport	6.36	Tallulah	2.12		
Maryland-Delaware	36.6	-2.6	Princess Anne, Md.	65	9	Oakland, Md.	7	13	1.66	-1.42	Sines, Md.	3.31	Great Falls, Md.	1.21		
Michigan	28.9	+8.9	Morenci	61	28	3 stations	-21	10	0.79	-0.90	Houghton	2.23	Secord	0.12		
Minnesota	27.4	+15.4	2 stations	63	24	2 stations	-26	12	0.40	-0.32	Little Falls	1.85	Redby	T.		
Mississippi	51.8	-2.6	Port Gibson	78	8	do	19	11	3.65	-1.21	Clarkdale	7.07	Brookhaven	2.22		
Missouri	40.9	+8.5	Doniphan	75	3	do	5	10	2.40	+0.29	Campbell	5.07	Lucerne	0.50		
Montana	31.7	+10.5	Ballantine	64	2	Hebgen Dam	-20	8	0.36	-0.36	Heron	8.25	3 stations	0.00		
Nebraska	36.7	+11.1	McCook	74	19	2 stations	3	19	0.64	-0.08	Orleans	2.10	2 stations	T.		
Nevada	37.9	+2.8	Logandale	76	28	Owyhee	-4	22	0.73	-0.25	Las Vegas	2.71	Beowawe	0.07		
New England	24.0	-1.4	Bridgeport, Conn.	56	28	Van Buren, Me.	-32	2	2.14	-1.05	Rockport, Mass.	4.96	Bethlehem, N. H.	0.42		
New Jersey	33.3	+3.9	Flemington	62	28	Sussex	-9	11	2.18	-1.45	Chatham	3.42	Cape May City	0.81		
New Mexico	38.5	+1.1	Artesia	74	5	Elizabethtown	-13	23	1.49	+0.83	Cloverdale	5.80	Gallegos (near)	0.07		
New York	25.1	+3.0	Flushing	58	28	Indian Lake	-28	3	1.80	-0.99	High Market	3.37	Lockport	0.67		
North Carolina	44.1	+1.5	Nashville	78	18	Mount Mitchell	4	15	1.83	-2.29	Rock House	5.00	2 stations	0.70		
North Dakota	28.0	+17.8	Berthold Agency	62	19	Towner	-31	9	0.28	-0.21	Fullerton	1.62	5 stations	0.00		
Ohio	35.2	+5.7	5 stations	65	28	Canfield	4	11	1.85	-0.50	Gallipolis	3.24	Wauseon	1.17		
Oklahoma	47.8	+6.5	Bufaula	79	2	Bartlesville	16	10	2.44	+1.27	Tuskahoma	7.51	Boise City	0.50		
Oregon	36.5	+0.7	Marshfield	72	12	Seneca	-5	7	1.71	-1.36	Valsets	9.75	Umatilla	0.02		
Pennsylvania	31.9	-2.8	3 stations	66	28	Hawley	-16	11	1.98	-0.99	Elk Lick	3.61	Erie	0.87		
South Carolina	47.7	-0.2	2 stations	77	18	Caesars Head	15	11	1.77	-2.51	Walhalla	4.63	Society Hill	0.53		
South Dakota	33.7	+14.1	Gannaville	69	15	McLaughlin	-14	13	0.32	-0.31	2 stations	0.90	2 stations	T.		
Tennessee	44.3	+3.3	Clarksville	73	7	Rugby	10	15	4.06	-0.26	Perryville	8.11	Elizabethton	1.20		
Texas	53.4	+2.4	Riogrande	86	22	3 stations	21	19	2.96	+1.17	Bon Wier	8.15	Clint	0.27		
Utah	33.1	+2.9	St. George	69	125	Lewiston	-2	1	0.71	-0.57	Silver Lake	1.98	Wendover	0.00		
Virginia	40.2	+2.9	Diamond Springs	74	9	Burkes Garden	8	11	1.89	-1.20	Emporia	3.59	Rocky Mount	0.81		
Washington	36.9	+1.9	2 stations	68	18	Stockdill Ranch	0	7	3.23	-0.87	Big Four	15.75	Wapato	0.03		
West Virginia	35.8	+3.6	do	68	17	Bayard	5	3	2.57	-0.56	Pickens	4.68	Wardensville	1.08		
Wisconsin	28.9	+12.2	Downing	62	21	2 stations	-25	10	0.61	-0.57	Wausau	1.30	Cuba	0.16		
Wyoming	28.1	+5.6	Torrington	67	19	Riverside	-24	22	0.48	-0.31	Bechler River	2.18	Deaver	0.02		
Alaska (January)	12.7	+10.4	Mill Seven (Cordova)	59	121	Eagle	-57	22	2.55	+0.50	Mill Seven (Cordova)	20.36	McKinley Park	0.00		
Hawaii	69.4	+0.7	Mahukoma	89	99	Volcano Observatory	47	12	4.14	-2.25	Wahiawa Water Co. Intake	17.60	6 stations	0.00		
Porto Rico	73.7	+0.3	Mayaguez	93	3	Guineo Reservoir	49	20	5.98	+3.06	Toro Negro	16.82	Penuelas	0.00		

¹ Other dates also.